

Two problematic, troglophilous gastropods from the Peloponnese, Greece (Gastropoda: Pulmonata: Zonitidae)

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Key words: Gastropoda; Pulmonata; Oxychilidae; Pristilomatidae; new species; troglodytes; Greece. Two species of pulmonate gastropods are described as new to science although their generic classification remains uncertain since only shells are available for study. The species might be troglodytes. Their shells indicate the presence of subterraneous material.

Introduction

In 1985 and following years, during several excursions in the eastern part of the Peloponnese, Greece, empty shells of two unknown pulmonate species were found. Their subgeneric or even generic classification is doubtful because of the absence of anatomical data. Probably these species occur in a for humans nearly inaccessible habitat. The snails are most probably troglophilous, if not troglodytic. Their shells may serve as indicators of deposits of subterranean material, which is an argument in favour of naming these species despite the fact that their systematic position remains unclear. Waiting for more data might become a too long wait. Both species were also found in a deposit together with shells of *Tsoukatosia liae* Gittenberger, 2000 (Clausiliidae, Serrulininae), a clausiliid species with a glassy transparent shell, also indicative of a subterranean habitat and hitherto known from its type locality only. Whenever such shells are observed, a large bottom sample for further investigation should be collected.

For collections the following abbreviations are used: IZPAN, Zoology Institute, Polish Academy of Sciences, Warszawa, Poland; RMNH, National Museum of Natural History 'Naturalis', Leiden, The Netherlands.

Systematic part

Oxychilidae P. Hesse, 1927 (1879)

Oxychilus Fitzinger, 1833

The genus *Oxychilus* s.l. is extremely speciose. Mainly based on the conspicuous differentiation in especially the male part of the genital tract, many species groups have been distinguished and classified as subgenera (Riedel, 1980, 1998). Meanwhile, the phylogenetic relationships of these alleged subgenera remained obscure and so in fact their taxonomic rank. Not all species could unequivocally be classified with a particular subgenus on the basis of data of the genital tract. Giusti & Manganelli (1999) clearly

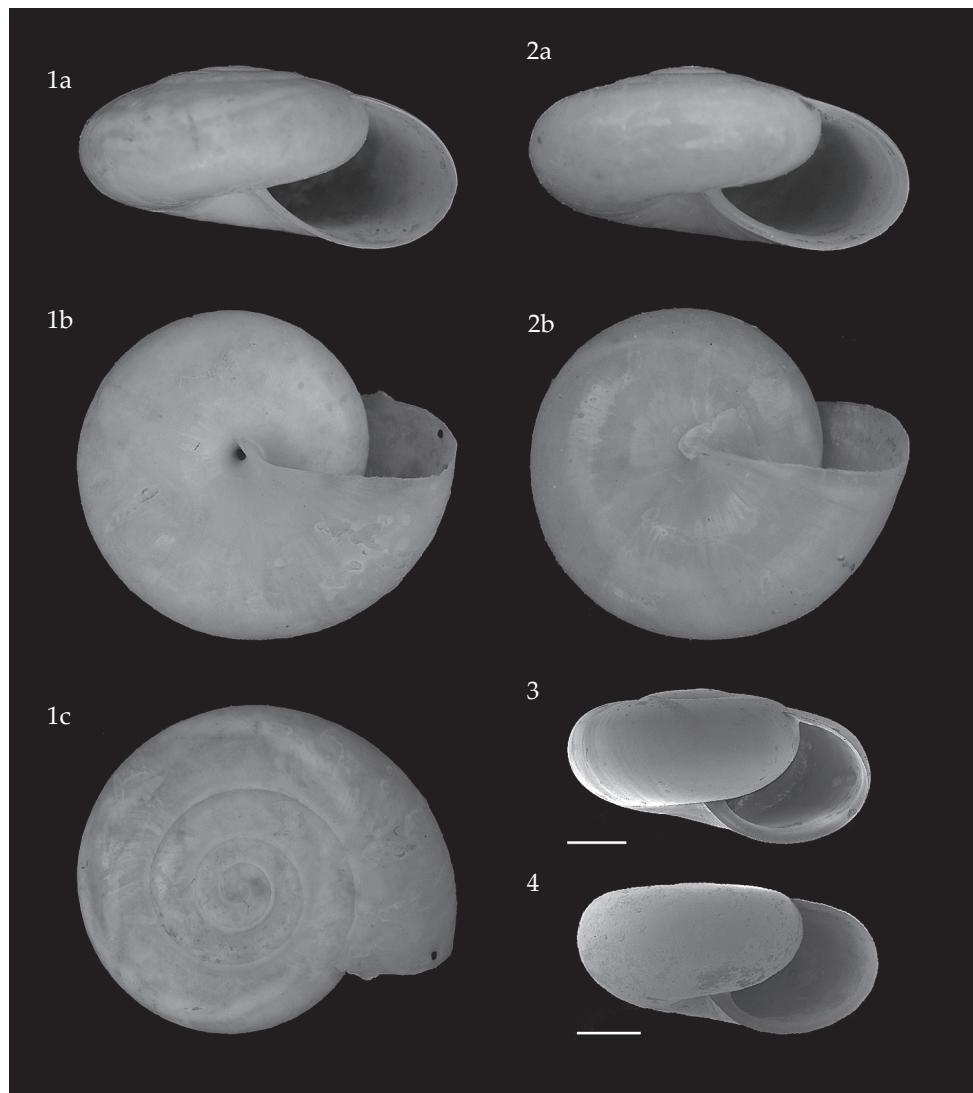
summarized the actual, quite unsatisfactory situation. Later on Bank et al. (2001) raised some of the subgenera sensu Riedel (1980) to generic status. Apart from this, a formal, nomenclatorial problem was reported (Giusti & Manganelli, 1999; Riedel, 1990; 1997; 1998: 52) but not really solved. This concerns the type species of *Riedelius* Hudec, 1961. Usually, the name *Riedelius* is used for a subgenus of *Oxychilus*, including *O. depressus* (Sterki, 1880) and its alleged closest relatives. However, the formal type species of *Riedelius*, viz. *O. inopinatus* (Uličný, 1887), differs substantially from *O. depressus*. Therefore, *Riedelius* has to be considered a synonym of *Mediterranea* Clessin, 1880. As a consequence, when the opinion of Riedel (1980, 1990, 1997) is accepted, either a new subgenus should be introduced for the species group of *O. depressus*, or the type species of *Riedelius* should be changed. So far, Schileyko (2003: 1429) introduced *Riedeliconcha* as a "nom. nov." for *Riedelius*, resulting in only an enrichment of the world of synonymy because the new name keeps the type species of *Riedelius*. For the moment being, still without any DNA data and with conflicting views on the diagnoses of both *Oxychilus* (*Riedelius*) sensu Riedel (1980, 1990, 1997) and *Mediterranea* sensu Bank et al. (2001), I consider the nomenclature proposed by Bank et al. (2001) too prone to future repetitive changes and adhere to a more conservative nomenclature.

Oxychilus mariensis spec. nov.
(figs 1-2, 4)

Material (holotype and paratypes).— Greece, Peloponnisos, Arkadhia: 1 km N of Mari, 720 m alt., UTM FG6200 (RMNH 99754/holotype, 99753/3); 3 km NNW of Mari, in Kounoupia, 750 m alt., UTM FG6002 (RMNH 99752/1); 3.95 rkm along by-road (from Leonidhion-Plaka) to Tsitalia, 310 m alt., in red mud in crevices, UTM FG663.122 (IZPAN/2; RMNH 99749/20, 99751/10, 108517/9); 3 km SW of Poulihra, 470 m alt., UTM FG6706 (RMNH 99750/2).

Shell.— Shell discoidal with a low, domed spire, colourless and very glossy when fresh, two times broader than high, with 3½-4½ whorls with obsolete growth-lines. Under optimal light conditions and at least $\times 25$ magnification, very fine, narrowly spaced, spiral lines may be vaguely discernible. The suture is very shallow. In frontal view, the peripheral part is broadly rounded. Last whorl obliquely flattened between the suture and its broadly rounded, peripheral part. Near the aperture the last whorl is slightly less than twice as broad as the adjoining, visible part of the penultimate one (in apical view). The umbilicus is either closed or very narrowly open, measuring c. 1/25 of the shell width at most. The adjoining, very short, columellar part of the apertural border is conspicuously thickened and reflected. The long, basal apertural border is gradually curved and cannot be sharply separated from the columellar border. The apertural border is also thickened in earlier growth-stages (fig. 4). Measurements: 6.5-7.8 \times 2.9-3.6 mm; holotype 7.5 \times 3.6 mm (4 whorls).

Differentiation.— In *Oxychilus depressus* (Sterki, 1880), *O. planorbis* (Möllendorff, 1899) and *O. ionicus* Riedel & Subai, 1978, which are conchologically most similar to *O. mariensis*, the adapical part of the whorls is flattened more horizontally near the suture, resulting in a less conspicuously domed shape. Only in *O. ionicus* the umbilicus is as narrow as in *O. mariensis*, but *O. ionicus* has smaller shells (only exceptionally reaching 6 mm in width) with more narrowly coiled whorls. In shells of *O. depressus* and *O.*



Figs 1-2, 4. *Oxychilus mariensis* spec. nov., Greece, Peloponnese, Arkadhia. 1a-c, holotype (RMNH 99754), 1 km N of Mari, 720 m alt., UTM FG6200 (actual width 7.5 mm); 2a-b, 4 (juvenile; scale-bar 0.5 mm), paratypes (RMNH 99749), 3.95 rkm along by-road (from Leonidhion-Plaka) to Tsitalia, 310 m alt., in red mud in crevices, UTM FG663.122 (actual width 6.5 mm). Fig. 3. *Lindbergia parnonensis* spec. nov., paratype (RMNH 99757) (juvenile; scale-bar 0.5 mm), Greece, Peloponnese, Arkadhia, 3.95 km along the by-road to Tsitalia (starting from Leonidhion-Plaka), 310 m alt., in red mud in crevices, UTM FG 663.122.

planorbis, which are most similar to those of *O. mariensis* in apical view, the penultimate whorl can clearly be followed in the slightly less narrow umbilicus. The nominal species *Zonites eudedalaeus* Bourguignat, 1856, provisionally classified as a form of *O. hydatinus* (Rossmässler, 1838) by Riedel & Subai (1978: 79, 81, figs 13-15 [holotype]) differs

also by its relatively small size (width 6.3 mm) and more (over 5), and more narrowly coiled, whorls (Riedel & Subai, 1978).

Note.— The specimens from near Mari (RMNH 99752-99754) have a very narrow but open umbilicus, whereas the umbilicus is completely closed by an expanded umbilical callus in the other shells with an undamaged umbilical region. Because additional differences were not observed, this is considered intraspecific variation, despite the fact that in species of Oxychilidae the umbilical region is usually very uniformous. Etymology.— The epithet *mariensis* is formed after the name of the village of Mari.

Pristilomatidae T. Cockerell, 1891

Lindbergia Riedel, 1959

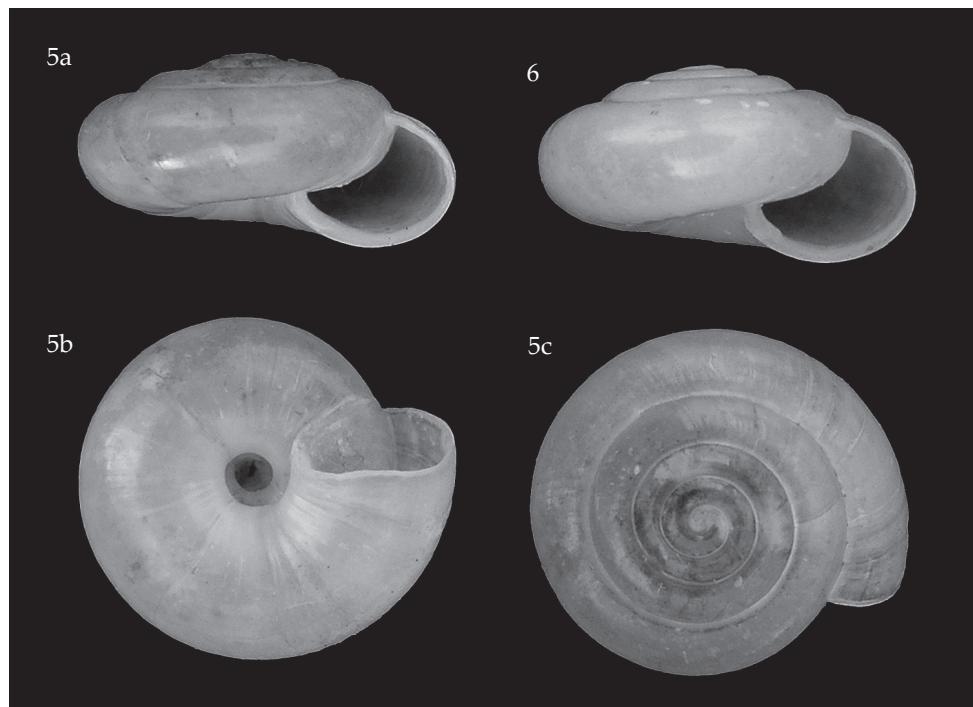
The genus is known with certainty, i.e. confirmed by anatomical data, only from Greece, but it is probably also represented in Italy (Gittenberger & Eikenboom, 2006), and Asia Minor and maybe Bulgaria (Riedel, 1980: 41; 1998: 20). The large disjunctions in its actually known range (Riedel, 1992: maps 11, 12; 1998: 21; Gittenberger & Eikenboom, 2006), suggest that additional species of these subterranean snails might still await discovery.

Lindbergia parnonensis spec. nov.
(figs 3, 5-6)

Material (holotype and paratypes).— Greece, Peloponnisos, Arkadidia: 5 km (6 km along the road) N of Kosmas, 975 m alt. FG5112 (RMNH 108511/1); 7 km WSW Leonidhion, road to Kosmas, FG5812 (RMNH 108510/6); 3 km WSW Leonidhion to monastery Ag. Nikolaos, 300-600 m alt., FG6213 (RMNH 108512/3); 3.95 km along the by-road to Tsitalia (starting from Leonidhion-Plaka), 310 m alt., UTM FG 663.122, 15.viii.2000 (IZPAN/5; RMNH 99758/holotype, 99757/380); Do, 10/11.viii.2003 (RMNH 99755/5); Do, 27. vi.2006 (RMNH 108513/32); 3 km SW of Pouliithra, 470 m alt., UTM FG6707 (RMNH 99756/24). Do, Lakonia: 1 km S of Kiparissi, 200-275 m alt., FF7791 RMNH 108514/15); rocky hill in Kiparissi, 50 m alt., FF7792 (RMNH 108515/27); 4 km SE. of Rikhea, 450 m alt., FF8176 (RMNH 108516/1).

Shell.— Shell discoidal, with a low, domed spire, moderately convex whorls. Colourless, glassy translucent when fresh, most specimens more or less weathered and whitish opaque. Suture very shallow; adapical side of the whorls slightly channelled. Shell surface somewhat silky at magnification of c. \times 25 or more, with numerous very fine, spiral striae, crossing the equally fine, or infrequently somewhat stronger, growthlines. Umbilicus open, measuring 1/6-1/7 of the total shell width, with a prominent, spiral ridge along the whorls; umbilical ridge bordered adapically by a narrow, slightly concave zone. Apertural edge clearly thickened internally, in particular at the very short, angular, columellar side. The apertural border is also thickened in earlier growth-stages (fig. 3). Shell width up to 4.5 mm, height up to 2.4 mm with up to nearly five whorls.

Differentiation.— Some *Lindbergia* species from the island of Crete have very similar, solid shells with a similarly ridged umbilicus. In *L. orbicularis* (Riedel, 1962) the shells are somewhat more conical than in *L. parnonensis* and the periphery is less broadly rounded. The basal part of the shell is slightly more flattened in the umbilical region, and the umbilicus is narrower in both *L. pseudolillyrica* Riedel, 1960, and *L. pageti* Riedel, 1968. With a diameter of 3.8 mm at most (Riedel, 1968: 483), shells of the latter species



Figs 5-6. *Lindbergia parnonensis* spec. nov. Greece, Peloponnisos, Arkadhia, 3.95 km along the by-road to Tsitalia (starting from Leonidhion-Plaka), 310 m alt., in red mud in crevices, UTM FG 663.122. 5a-c, holotype (RMNH 99758) (actual width 4.3 mm); 6, paratype (RMNH 99757) (actual width 3.9 mm).

are also smaller. In *Lindbergia spiliaenymphis* Riedel, 1959, the maximum shell diameter is even less, i.e. 3.3 mm (Riedel, 1959: 110).

Distribution.— *Lindbergia parnonensis* is known from the Parnon Mts, from 4 km SE Rikhea in the south to near Leonidio and Kosmas in the north.

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